

Being engaged in preparing a continuation of the work of my father, the late Dr. Amos Binney, on the "Terrestrial Mollusks and Shells of the United States," I take this opportunity of soliciting the assistance of those interested in the subject. Suites of local species from every part of the Union will be of great value to me in ascertaining the geographical distribution of species. They will be gratefully acknowledged, and, if required, shells given in exchange. I would also request any information relating to the subject, and any addenda or corrigenda to the "Mollusks."

Shells may be forwarded safely by mail, if packed in a pasteboard box, with tissue paper or cotton. Parcels exceeding the required weight of the Post-Office, may be sent by express.

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DESCRIPTIONS

OF

TERRESTRIAL SHELLS

OF

NORTH AMERICA.

By Thomas Say.

PHILADELPHIA:
CHILDS & PETERSON,
124, ARCH STREET.
1856.

P R E F A C E .

Anticipating that the publication of the Plates forming the third volume of my late father's work on the "Terrestrial Mollusks and Shells of the United States," will excite increased attention to that subject, it has been suggested to me by my friend, Mr. THOMAS BLAND of New York, that a reprint of the original descriptions and accompanying remarks of THOMAS SAY will materially assist in the study of this branch of Zoology.

I have accordingly collected and now publish, from the scattered and generally inaccessible writings of Mr. SAY, all that relates to our terrestrial species.

These pages are offered to the Conchologists of America and Europe to aid and encourage them in their investigations, and to induce a just appreciation of the labors of our first and greatest Naturalist.

W. G. BINNEY.

Germantown, near Philadelphia, }
Nov. 1856. }

The Extracts have been made from the following
works :

1. The article Conchology, in the American edition of Nicholson's Encyclopædia, 2d ed. Philad. 1818, vol. iv., with figures.

2. Numerous articles in the Journal of the Academy of Natural Sciences of Philadelphia, vols. i. ii. v.

3. Expedition to the Source of St. Peter's River, &c. &c., under the command of Major Long. Vol. ii., Appendix, with figures. Philad. 1824.

4. American Conchology, or Descriptions of the Shells of North America. Illustrated by colored figures. New Harmony, Indiana, 1830-34.

5. Disseminator of Useful Knowledge. New Harmony, Indiana, 1829-31.

6. Transylvania Journal of Medicine. Vol. ii., 1832.

The extracts from the last two Journals have been made from the republication by Mrs. SAY, New Harmony, 1840, under the title, "Descriptions of some new Terrestrial and Fluvial Shells of North America."

DESCRIPTIONS OF TERRESTRIAL SHELLS OF NORTH AMERICA.

No. 1.—The Article “CONCHOLOGY,” in Nicholson’s Encyclopædia, Am. Ed., anno 1818.

1. *HELIX ALBOLABRIS*.—Shell thin, fragile; convex, imperforated; with six volutions, whorls obtusely wrinkled across, and spirally striated with very fine impressed lines, a little waved by passing over the wrinkles, both becoming extinct towards the apex, which is perfectly smooth; aperture lunated, not angulated at the base of the column, but obtusely curved, lip contracting the mouth abruptly, widely reflected, flat and white.

Length of the column three-fifths of an inch; breadth one inch.

Plate 1, Fig. 1. Lister, Conch. tab. 47.?—*Rhodia*, Gmelin’s Ed. Syst. Nat.

The common garden snail, frequenting moist shaded situations, and is generally well known. It is very probable that this is the *Rhodia* of authors, but as in the description of that species nothing is mentioned of the reflected lip, and not having in our possession the volume of Chemn. Conch. referred to for a figure of it, we have made an interrogative reference, and for the present have adopted a new name.

2. *H. ARBOREUS*.—Shell very thin, fragile, depressed, horn color, pellucid, very little convex: whorls four, irregularly wrinkled across; aperture sublunated, lip thin, brittle, junction with the body whorl acute; umbilicus large and deep.

Length, one-tenth of an inch nearly; breadth nearly one-fifth.

Plate 4, Fig. 4.

Under the bark of decaying trees very common. Inhabitant pellucid; base white, acute behind, not extending forward before the head; head and neck dusky; tentacula four; lower ones very short; eyes placed in the tip of the superior pair.

The application of the Goniometer, upon some commodious construction, might very much facilitate the investigation and determination of species, by ascertaining the precise angle subtended

by the two sides of the spire in univalves. This angle, combined with the length and breadth of the shell, and proportionate length of the mouth, would, it is conceived, give us a better idea of form than we can have by the present mode of description. It is a plan we have adopted in describing our marine shells.

3. *H. TRIDENTATA*.—Shell depressed, spire very little raised, brownish or horn color; whorls five, crossed by numerous raised, equidistant, acute lines, separated by regular grooves; aperture lunate, three toothed; teeth placed triangularly, one on the pillar lip situated diagonally; outer lip abruptly contracting the aperture, widely reflected and white, furnished with two of the teeth resembling projecting angles. Umbilicus moderate.

Half an inch wide. Inhabits the Middle States. Plate 2, fig. 1.

Cochlea parva, umbilicata, tenuiter striata. Tridens sc. in triangulo positi, nempe unus ad fundum oris, alter ad columellam, tertius ad labrum. Lister, *Conch. tab. 92, fig. 92.*

The three curves formed by the two teeth in the outer lip of this shell bear considerable resemblance to the ornament often placed upon panels in Gothic architecture. It is found under the loose moist bark of decaying trees in some plenty. Belongs to the genus *Polydontes*, Montf.

As many of the compound terms as possible ought to be banished from the language of Natural History, we would therefore propose that the term *outer-lip* and *pillar-lip* be substituted by *Labrum* and *Labium*; these would be equally expressive, and occupy less space in a description.

4. *H. ALTERNATA*.—Shell somewhat convex, fuscous, varied or alternating with pale rays; whorls five, striated across with raised equidistant acute lines, forming grooves between them. Aperture thin and brittle; lip regularly curved, within glossed with perlaceous, and when placed before the light, the fuscous lines appear sanguineous. Umbilicus large, exhibiting all the volutions.

Three-fourths of an inch wide. Inhabits the Middle States. Plate 1, fig. 2.

H. radiata, Gmelin's Ed. of *Syst. Nat.* p. 3634.

Cochlea umbilicata, fusca, sive variegata, capillaribus stryis leviter exasperata. List. *Conch. tab. 70, fig. 69.*

Lister's figure, which is, without doubt, a representation of this species, is referred to in Gmelin as *H. Radiata*, but we believe

our shell to be a distinct species from that which is found in France; we therefore apply a new name. Found under bark of dead trees and in moist places, and is not uncommon. In the young shell the whorls are less rounded and flattened above, so as to form almost an angle with the exterior margin; the colors are altogether paler, and may be described as pale yellow spotted or above radiate with reddish brown, and a row of spots interrupted from the radii by the immaculate prominent margin.

5. H. GLAPHYRA.—Shell very much depressed, thin, fragile, pellucid, polished; whorls five, regularly rounded, and with obsolete and irregular wrinkles across them; beneath whitish; umbilicus moderate, not exhibiting the volutions. Pl. 1, Fig. 3.

Taken by Mr. G. Ord in his garden in Philadelphia.

This species and the preceding are referable to the genus *Zonitis*, Montf.—a name which is objectionable from its being used in Entomology.

It considerably resembles *Helix nitens* of Europe, particularly in being whitish beneath, and will be properly arranged next that species in the systems.

The following species of *Helix* and other genera were also described in this paper, but the descriptions and remarks are merely a repetition from the Journal of the Academy, vol. i.

Helix thyroïdus.

“ *minuta.*

“ *labyrinthica.*

“ *hirsuta.*

“ *perspectiva.*

“ *lineata.*

Polygyra auriculata.

“ *avara.*

“ *septemvolva.*

Oligyra orbiculata.

Succinea campestris.

“ *ovalis.*

Polyphemus glans.

PUPA CORTICARIA.—Shell dextral, cylindrical, obtuse at the apex; whorls five, not precipitately wrinkled or striate; aperture suborbicular, lip reflected; a single tooth on the pillar lip, near the outer angle; inner angle with an angular projection resembling a second tooth, sometimes obsolete.

Length about the tenth of an inch.

Plate 4, fig. 5.—A, natural size; C, an enlarged view.

Very common under the bark of trees, near the earth, and resembles *Turbe muscorum* of authors.

No. 2.—Journal of Academy of Natural Sciences, vol. i., p. 15
et seqq. anno May 1817.

Succinea ovalis.—Shell suboval, pale yellowish, diaphanous, very thin and fragile, with nearly three oblique volutions. Body very large; spire small, but little prominent, somewhat obtuse. Aperture longitudinally subovate, large. Columella much narrowed, so as almost to permit the view of the interior apex, from the base of the shell. Scarcely any calcareous deposit on the pillar lip. Length nine-twentieths of an inch, aperture seven-twentieths.

Inhabits marshy grounds in shaded situations; common. Collection of the Academy.

Animal longer than its shell, furnished with four tentacula, the two superior ones longer, cylindrical, supporting the eyes; inferior ones short, conic. Color pale, with minute black points, which are assembled into fascia on the sides and fillets on the neck above; neck granulate above, a black line passes each side on the neck, from the tip of the oculiferous tentacula, gradually disappearing under the shell. Front truncate, quadrate.

When the animal is living, so vitreous is the shell that all the markings of its body are plainly discernible; so that although the shell is of a straw color, immaculate, it appears of a dusky hue, with a remarkable white, flexuous, longitudinal vitta on the back, arising from the suture and terminated about midway to the base, often with two or three obsolete white spots near its tip. The characters of the inhabitant are widely distinct from the animal of the *Lymnæa*, and are somewhat allied to those of the inhabitants of the *Helices*; it cannot, however, be referred to *Helix* with propriety, as will be evident from the specific description. I have for the present considered it as of Draparnaud's genus *Succinea*, though it somewhat resembles a *Bulimus*, particularly in its habitat, being a terrestrial species, and in this respect it differs from *Succinea*. It may perhaps belong to Lamark's genus *Amphibulimus*.

Helix hirsuta.—Shell subglobose, brownish, imperforated, covered with short, numerous, rigid hairs; whorls five, but little rounded; suture distinct; aperture very narrow, almost closed by an elongated lamelliform tooth, situated on the pillar lip, and cir-

cularly joined to the outer lip at the base. Outer lip reflected back upon the whorl, and incorporated with it near the base, with a deep sinus in the middle. Beneath, one quarter of an inch. Lister, Tab. 93, f. 94?

Inhabits moist places; common. In the collection of the Academy. This species appears to be somewhat allied to *H. hispida*, but is sufficiently distinct. Found by Mr. Lardner Vanuxem.

H. PERSPECTIVA.—Shell very much depressed, with about six whorls; whorls striated across, with raised, parallel, acute lines, forming strongly impressed sulcæ between them. Umbilicus very large, resembling an inverted spire, in diameter at least equal to the breadth of the body whorl, and exhibiting distinctly all the vortices. Diameter three quarters of an inch. Found by Mr. Lesueur near Lake Erie.

H. LINEATA.—Shell very much depressed, somewhat discoidal. Whorls about four, each longer than broad, with numerous raised, parallel, equidistant, regular, revolving lines. Suture impressed. Umbilicus very large, diameter at least equal to the breadth of the body-whorl, and exhibiting all the vortices distinctly. Aperture longer than wide, lunate. Diameter three-twentieths of an inch, nearly.

Collection of the Academy.

Found by Mr. Robert E. Griffith, near Philadelphia. Somewhat resembles the last, but is more depressed, and the striae are transverse, not longitudinal, as in that shell; the cavity beneath, also, though of equal proportional diameter, is not proportionally deep.

H. THYROIDUS.—P. 123 et seqq., October 1817. Shell thin, fragile, convex, umbilicate; whorls five, obtusely wrinkled, or rather with equidistant, gradually elevated, obtuse lines; and spirally striate, with minute, impressed lines; lip widely reflected, white and flat before, partially concealing the umbilicus; pillar-lip furnished with a very oblique tooth. Breadth four-fifths to nine-tenths of an inch.

This species very much resembles *H. albolabris* of Nicholson's Encyc., Amer. ed., but is umbilicated, and toothed on the pillar-lip. It is much less common. This shell was indicated in the American edition of the Encyclopædia, but its characters were not laid down.

II. MINUTA.—Shell rather thick; spire convex, little elevated, with three volutions; suture well defined, impressed; whorls obtusely wrinkled across; aperture nearly orbicular; lip much thickened, reflected, white, distant from the umbilicus; umbilicus large, exhibiting the volutions. Breadth less than one-tenth of an inch. Found under the bark of a decaying oak; is readily distinguishable from other species by its small size and conspicuous lip.

II. LABYRINTHICA.—Shell conic, dark reddish brown, body lighter; whorls five or six, with conspicuous, elevated, equidistant, obtuse lines across, forming grooves between them; apex obtuse, lip reflected, rounded; pillar-lip with a large, lamelliform, elongated tooth, which appears to revolve within the shell, parallel to the suture; a smaller raised line revolves nearer to the base within the shell, but becomes obsolete before it arrives at the pillar-lip; umbilicus rather large. Breadth one-tenth of an inch.

Found on fungus in decaying wood. This shell is remarkable for the two much elevated lines, which revolve within the shell upon the penultimate whorl, the upper one larger, and terminating at the aperture very conspicuously, and resembling a tooth.

GENUS POLYGYRA.—Say.

Journal Acad. vol i. p. 276, anno, May, 1818.

Shell discoidal, more or less carinated on the upper edge of the whorls, umbilicated; aperture longer than broad; lips thickened, toothed, or folded and continued, folds concave beneath; pillar-lip raised above the preceding whorl and concave beneath.

Animal granulated, tentacula four, eyes at the tip of the superior tentacula and retractile; operculum none.

P. AURICULATA.—Shell beneath, convex; whorls five, a little rounded, crossed by numerous raised equidistant lines, forming grooves between them; spire very little raised; lateral line (extending from the outer whorl to the apex,) not convex, but somewhat concave; mouth very unequal, lips prominent above, adpressed to the preceding whorl beneath; pillar lip suddenly reflected, and pressed into the mouth at an acute angle, beneath very acutely concave; outer lip a little more prominent in the middle, and within the edge protruded into the mouth; throat extremely narrow; suture near the mouth suddenly reflected from

the preceding whorl, and carinate; umbilicus dilated, very small within, and exhibiting a groove on the outer whorl.

Breadth of the female nearly half an inch, of the male about three-tenths. Inhabits Florida. Cabinet of the Academy. This curious species we found near St. Augustine, East Florida, in a moist situation. They were observed in considerable numbers; the color is reddish brown, indistinctly banded with whitish lines, sometimes with darker ones, mouth white.

P. AVARA.—Shell covered with numerous short, robust hairs; spire convex; whorls four, regularly rounded, with hardly elevated lines forming grooves, which are much more conspicuous near the mouth; mouth subreniform, two projecting, obtuse teeth on the outer lip within, separated by a deep sinus; outer lip elevated, equal, describing two-thirds of a circle; pillar-lip elevated, broadly but not profoundly emarginate, concave beneath, and connected to the inner side by an elongated, lamelliform tooth, which is placed obliquely on the penultimate whorl, near the middle of the mouth; lips almost equally prominent, continued; umbilicus moderate, not exhibiting the volutions, no groove on the ultimate whorl within it.

Breadth quarter of an inch. Inhabits Florida. Cabinet of the Academy. Animal longer than the breadth of the shell, acute behind, above granulated and blackish, beneath, and each side, white.

This we found in the orange groves of Mr. Fatio, on the river St. John, East Florida; it is usually covered with a black, earthy coat, which is probably retained and collected by the hairs. When unencumbered with this vesture, the shell is of a horn color. It is by no means so common as the preceding species.

P. SEPTEMVOLVA.—Shell much depressed, discoidal; spire not prominent; whorls seven, perfectly lateral, compressed, depressed, and marked with conspicuous lines and grooves above, a projecting carina on the upper edge of the body whorl, beneath which the lines and grooves are obsolete; aperture subreniform, not contracted; lips equal, elevated, outer one reflected, regularly rounded so as to describe two-thirds of a circle; pillar-lip projecting inwards, into an angle or tooth, which is concave beneath; beneath the four exterior volutions equally prominent, transverse diameters equal to those of the upper surface; umbilicus central, moderate, attenuated to the apex so as to exhibit the remaining volutions.

Breadth, female, two-fifths—male, three-tenths of an inch. Inhabits Georgia and East Florida. Cabinet of the Academy. A very common shell in many parts of Georgia, particularly the sea islands, also in East Florida. We found them numerous under the ruins of old Port Picolata on the St. John River, and on the Oyster-Shell Hammocks, near the sea, and in other situations under decaying palmetto logs, roots, &c.

These shells would have been referred by Linné to the genus *Helix*, but as that genus has been limited by Mr. Lamarck and others, to those shells of which the apertures are broader than long, I cannot with propriety, in the present state of Conchology, consider them as of that genus. Neither can I refer them to either of the genera which have been separated from *Helix* by Messrs. Lamarck, Montfort, &c., by the characters which those naturalists have given of their genera. They differ from the others in having the pillar-lip elevated considerably above the surface of the penultimate whorl, so as to be equally prominent with the outer lip, with which it forms an uninterrupted continuation, and by the concavities beneath the lips, formed by the protrusion of a portion of the shell into the aperture. In this last character it approaches the genus *Caprinus* of Mr. Montfort, but differs in being umbilicated.

SUCCINEA CAMPESTRIS.—Shell oval, very fragile; whorls three, not remarkably oblique, pale yellowish, with opaque, white, and vitreous lines, irregularly alternating.

Length not quite three-fifths, breadth seven-twentieths of an inch.

This shell is extremely common in many parts of the Southern States; it abounds in the sea islands of Georgia in the low, marshy grounds behind the sand-hills of the coast, where they are destroyed in great numbers by the annual conflagration of the old grass. On Amelia Island, East Florida, I found them in great plenty on the highest sandy ground of the island. On Cumberland Island, in Mr. Shaw's garden, I obtained several specimens from the leaves of radishes.

The resemblance between this species and the *ovalis* is very great; it differs, however, in being less elongated, and of a more robust form; the revolution of the spire is much less oblique, the shell itself is thicker and less fragile.

Animal whitish; eyes, inferior tentacula, and a line passing

from the eyes, disappearing under the shell, black ; a gamboge colored vitta is visible through that part of the shell which is opposed to the mouth.

POLYPHEMUS GLANS.—This shell furnished De Montfort with the type of his genus *Polypheumus* ; he refers to Bruquiere as the first describer of it, under the name of *Bulimus glans* in the Encycl. Method. The animal has not been described, but we are informed that it lives in the immense marshes, formed by the overflow of the great rivers that water the vast country of Louisiana. In the sea islands of Georgia, we found them numerous in the marshy districts immediately behind the sand-hills of the coast, in Florida in similar situations, and also on the Oyster-Shell Hammocks, and generally in such situations as are tenanted by *Succinea campestris*. The color of the shell on the spire is chestnut brown, which gradually and very perceptibly becomes paler to the aperture ; aperture occupying about half the length of the shell. On elevated situations they are small, almost transparent, and of a fragile consistence. It is only in low, marshy situations that they attain their greatest size.

Length two inches and two-fifths, breadth one inch nearly.

Animal elongated, as long again as the shell, granulated, tentacula four, superior ones oculiferous, abruptly deflected at tip, beyond the eyes ; inferior ones much shorter and deflected at tip ; lips beneath the tentacula elongated, palpiform, almost as long as the superior tentacula, retractile, generally more or less recurved, compressed, attenuated, and acute at tip, and forming a considerable interval between their prominent bases.

When the animal is in motion, the elongated lips are used as tentacula to feel the way.

GENUS OLYGYRA.

Shell rounded ; aperture longer than broad, semiorbicular, emarginated by a projection of the penultimate whorl ; external lip reflected ; pillar-lip with obsolete calcareous deposit ; umbilicus none ; columella slightly angulated at base.

Animal terrestrial, operculated ; tentacula two, filiform ; eyes prominent, placed at the external base of the tentacula ; rostrum bilabiated at tip, shorter than the tentacula ; foot simple.

O. ORBICULATA.—Shell subglobular ; spire not prominent, but

more than convex; lateral line somewhat convex; whorls five, obsoletely striated across, regularly rounded; color pale greenish, yellowish, or slightly tinted with reddish, particularly on the body, and margined above by an obsolete white line; on the middle of the body a white vitta revolves, sometimes obscure or wanting; aperture acute above, regularly rounded at the base, and extending from the centre of revolution or base of the column to an equidistance between the base and the apex of the spire; base of the columellar slightly projecting into an obtuse angle; exterior lip whitish, reflected.

Length one-fifth of an inch. Inhabits East Florida. Cabinet of the Academy. Animal pale; rostrum and tentacula blackish, the latter with a white line; eyes very black, elevated in the form of a short tubercle; length about equal to the breadth of the shell; foot not broader than the body; tail rounded, or somewhat acute; operculum simple, not spiral, yellowish brown, minutely granulated.

This species we found in great numbers on what are called Oyster-Shell Hammocks, near the mouth of the river St. John, East Florida, in company with *Polygyra septemvolva*. When in motion the tentacula are elevated and depressed alternately, as if feeling the way.

This shell is certainly a Linnæan *Helix*, but according to the improvements which have been made in Conchology since the time of the Swedish naturalist, by Mr. Lamark and other systematists, it is at once excluded from that genus and its congeners, by having but two tentacula, and by its operculated aperture. With the genus *Cyclostoma*, as it now stands, our shell has more affinity than it has to any other, but a very distinct generic character is observable in the aperture, which is not orbicular as in *Cyclostoma*, but is almost semi-orbicular, greater in length than in breadth, and the lips widely disunited. In addition to the characters usually given of the animal of *Cyclostoma*, Mr. Cuvier remarks that the tentacula are terminated by obtuse tubercles; no such appendages are annexed to the corresponding members of this animal. Upon these considerations I have thought proper to construct the present genus.

HELIX MOLTILINEATA.—Shell thin, convex, imperforated ; of a brown color, with numerous dark red, revolving lines, which are minutely and irregularly undulated ; whorls six, with elevated, subequidistant lines, forming grooves between them ; aperture lunated, not angulated at the base of the column, but obtusely curved ; labrum contracting the mouth slightly, reflected, white, more or less distinctly stained by the termination of the spiral red lines, and adpressed to the body whorl near the base ; umbilicus covered with a white callus.

Inhabits Illinois and Missouri. Length of the columella about three-fifths, greatest width rather more than one inch.

Animal granulated, granulae large, whitish, interstices blackish ; foot, beneath, black.

An exceedingly numerous species in the moist forests on the margin of Mississippi near the Ohio, and the Missouri as far as Council Bluff. The red revolving lines are numerous, varying from four or five to twenty-five or thirty and perhaps still more ; they are sometime confluent into bands ; when viewed within the mouth they appear sanguineous.

H. APPRESSA.—Shell depressed, brownish horn color ; whorls five, depressed, forming an angle on the external one, more acute near the superior angle of the labrum, with numerous transverse, elevated, equidistant lines, with interstitial grooves ; umbilicus covered over with calcareous matter, but concave within ; aperture moderate ; labrum dilated, reflected, white, margined with brownish ; near the base, appressed to the body whorl, and covering the umbilicus ; a slight projecting, dentiform angle on the inner middle ; labrum with a strong, prominent, oblique, compressed, white tooth, which gradually slopes and becomes obsolete towards the umbilicus.

Var. a.—Labrum with two projecting angles. Breadth three-fifths of an inch.

Animal—foot pale ; neck above and each side blackish. Inhabits the banks of the Missouri and Ohio.

This species is very common on the banks of the Ohio below Galiopolis ; I also found it near Council Bluff. It very much resembles *H. tridentata*, but the umbilicus is covered over ; the outer lip at base is flattened upon the shell ; and there is but a

single angle upon it. In Lister's *Conch.* pl. 93, fig. 93, is the representation of a shell, which is most probably intended for this species. Lister's figure is quoted in the books for *H. punctata*, but as the figure of a different species, (*Born. Mus.* pl. 14, fig. 17 and 18,) is also referred to as the same, I conclude that two distinct species have been confounded together under the common name of *punctata*; certainly the character from which this name was taken is never present on our shell. Specimens have been subsequently found by Dr. Thomas McEuen near the Falls of Niagara.

H. PALLIATA.—Shell depressed, with elevated lines, forming grooves between them; epidermis fuscous, rugose with very numerous minute tuberculous acute prominences; volutions five, depressed above, beneath rounded, forming an obtuse angle exteriorly, which is more acute near the termination of the labrum; umbilicus covered with a white callus; aperture contracted by the labrum; labrum widely reflected, white, two profound, obtuse sinuses on the inner side above the middle, forming a prominent distinct tooth between them, and a projecting angle near the middle of the lip; labium with a large, prominent, white tooth, placed perpendicularly to the whorl, and obliquely to the axis of the shell, and nearly attaining the umbilical callus.

Inhabits Illinois. Length of the column seven-twentieths of an inch. Greatest breadth, four-fifths of an inch.

Var. a.—A very prominent acute carina; destitute of minute prominences. Inhabits Ohio. Breadth nearly one inch.

This shell is found on the banks of the Mississippi in moist places. It very much resembles *H. tridentata*, but is destitute of umbilicus, has a rugose epidermis, and is much larger. It is still more closely allied to *appressa*, but its superior magnitude, teeth and epidermal vesture distinguish it from that species. Specimens have subsequently been found by Dr. Thomas McEuen near the Falls of Niagara.

H. INFLECTA.—Spire convex; volutions five, wrinkled across; suture not profoundly impressed; aperture straight; labrum reflected, bidentate, teeth separated by a profound sinus, the superior tooth inflected; behind the lip a profound groove, which abruptly contracts the aperture in that part, so that although the lip is reflected, yet its edge is not more prominent than the general

exterior surface of the body whorl ; at base the lip is adpressed and covers the umbilicus ; labrum with a large, prominent, oblique, lamelliform tooth ; umbilicus closed.

Greatest transverse diameter nearly nine-twentieths of an inch. Inhabits lower Missouri.

The teeth of the labrum somewhat resemble those of *tridentata* ; but in the form of the groove behind the labrum, and the pillar-tooth, it resembles *H. hirsuta*. Several specimens were found, but all dead shells, and destitute of their epidermis.

H. CLAUSA.—Shell fragile, slightly perforated, subglobular, yellowish horn color, above convex ; whorls four or five ; aperture slightly contracted by the lip ; lip reflected, flat, white, nearly covering the umbilicus.

Inhabits Illinois. Greatest breadth from one half to three-fifths of an inch.

A small and handsome species, which somewhat resembles *albolabris*, but is much smaller, more rounded, and is subumbilicate. This shell also occurs, though, perhaps rarely, in Pennsylvania.

H. OBSTRICTA.—Shell depressed, with elevated lines forming grooves between them ; epidermis pale brownish, naked ; volutions five, depressed above, beneath rounded, with an acute, projecting carina ; umbilicus covered with a white callus, indented ; mouth resembling that of *H. palliata*.

Inhabits Ohio. Breadth nearly one inch.

This species is very closely allied to *Helix palliata*, but the epidermis is not covered with small elevations as in that shell, and the carina is very prominent and remarkable.

H. ELEVATA.—Shell pale horn color, spire elevated ; whorls seven, regularly rounded ; umbilicus none ; aperture somewhat angulated ; labrum dilated, reflected, pure white, at base adpressed to the body whorl, abruptly narrowed on the inner edge beneath the middle, and continuing thus narrowed to the superior termination, leaving a projecting angle behind the middle ; labium with a large, robust, very oblique, subarquated, pure white tooth.

Greatest breadth seven-eighths of an inch. Column nine-sixteenths of an inch.

Found rather common in the vicinity of Cincinnati, Ohio. It seems to be distantly related to *thyroidus* by the tooth on the labium, but this tooth is much more robust ; it differs much more

essentially by the much more elevated spire, and by the superior half of the dilated lip being abruptly narrowed so as to form a prominent angle near the middle. It is also a much thicker shell.

II. *INTERNA*.—Shell yellowish red; volutions six or eight; whorls with regular, equidistant, elevated, obtuse lines across them, separated by regular grooves; lines obsolete beneath; spire convex, little elevated; aperture very straight, transverse, less than one half of the longitudinal diameter; labrum not reflected; within, upon the side of the labrum, two prominent, lamelliform teeth, of which the superior one is largest, and neither of them attain the edge of the lip; region of the base of the columella much indented; umbilicus obsolete or wanting.

Transverse diameter more than three-tenths. Height of the columella about three-twentieths of an inch. Inhabits Lower Missouri.

Of two specimens which I obtained, the larger one had six volutions, and the smaller one had eight; the superior tooth in the larger one was concave towards the base of the shell. It is a remarkable and very distinct species.

H. *CHERSINA*.—Shell subglobose-conic, pale yellowish white, pellucid, convex beneath; volutions about six, wrinkles not distinct; spire convex-elevated; suture moderate; body whorl slightly carinated on the middle; mouth nearly transverse, unarmed, the two extremities nearly equal; labrum simple; umbilicus none.

Inhabits the Sea Islands of Georgia. Breadth one-tenth of an inch. Cabinet of the Academy.

A very small species. But one specimen occurred in a cotton field. It is rather larger than *H. labyrinthica*.

H. *GULARIS*.—Shell subglobose, pale yellowish horn color; polished, pellucid, beneath near the aperture whitish-yellow opaque; volutions six or seven, with prominent, somewhat regular wrinkles; spire convex, a little elevated; suture moderate; labrum not reflected; throat far within upon the side of the labrum, bidentate; teeth lamelliform, of which one is oblique and placed near the middle, and the other less elongated, placed near the base; umbilicus none.

Breadth more than one-fourth of an inch. Inhabits Ohio and Pennsylvania.

In general form it resembles *H. ligera*, but may be distinguished by the absence of umbilicus, and, upon particular examination, by the teeth, which are situated far within the aperture. In the collection of the Academy.

H. LIGERA. Shell subglobose, pale yellowish horn color, polished; body whorl pellucid, yellowish white, opaque beneath near the aperture; volutions rather more than six, all except the apical one, wrinkled across; spire convex, a little elevated; umbilicus very small; suture not deeply impressed; labrum not reflected.

Inhabits Missouri. Greatest length three-tenths, oblique length less than nine-twentieths, transverse diameter less than eleven-twentieths.

Approaches nearest to *H. glaphyra*, but is readily distinguished by the greater convexity of the spire, and the smaller umbilicus. Rather common. In Lister's Conch. on pl. 81, fig. 82, a shell is represented which may be intended for this species.

H. SOLITARIA.—Shell subglobose, with two or three revolving, rufous lines; spire conico-convex; volutions five and a half, wrinkled across and rounded; suture rather deeply impressed; aperture wide, embracing a rather small portion of the penultimate whorl; labrum not reflected; umbilicus large, distinctly exhibiting all the volutions to the apex.

Greatest transverse diameter nearly one and one-fifth of an inch. Inhabits lower Missouri.

But a single specimen was found; it was a dead shell, destitute of its epidermis. It is a very distinct species.

H. JEJUNA.—Shell subglobular, glabrous, pale reddish brown; volutions five, slightly wrinkled, regularly rounded; spire convex; suture rather deeply impressed; aperture dilate lunate; labrum a little incrassated within, not reflected; umbilicus open, small.

Breadth rather more than one-fifth of an inch. Inhabits the Southern States.

Animal—light reddish brown, with a granular surface, longer than the breadth of the shell; oculiferous tentacula elongated, and rather darker than the body.

This shell is very closely allied to *H. sericea* of Southern Europe, but it differs from that species in being destitute of the

hirsute vesture. I found several specimens of *jejuna*, during an excursion some time since into East Florida, at the Cow Fort on St. John River. It is in the collection of the Academy.

H. CONCAVA.—Shell much depressed, suborbicular, horn color, or whitish, immaculate; volutions five, irregularly wrinkled across, more convex beneath; suture distinctly impressed; umbilicus very large, exhibiting all the volutions to the summit distinctly; aperture large, short; labrum towards the base very slightly and inconspicuously reflected.

Inhabits Illinois and Missouri. Greatest width seven-tenths of an inch.

Found in moist places near the Mississippi River, on the Missouri as high as Council Bluff, and on the Sea Islands of Georgia. It is a much depressed shell.

H. DEALBATA.—Shell conical, oblong, thin and fragile, somewhat ventricose; volution 6-7, wrinkled across, wrinkles more profound and acute on the spire; spire elevated, longer than the aperture, sub-acute; aperture longer than wide, labrum not reflected; umbilicus small and profound.

Length more than three-fourths of an inch, breadth nine-twentieths of an inch. In the Cabinet of the Academy and Philadelphia Museum. Inhabits Missouri and Alabama.

In outline it resembles a *Bulimus*. Four specimens of this species were sent to the Academy from Alabama, by Mr. Samuel Hazard; and a single depauperated specimen was found by myself on the banks of the Missouri.

H. PROFUNDA.—Shell pale horn color; spire convex, very little elevated; whorls five, regularly rounded, and wrinkled transversely; body whorl with a single revolving rufous line, which is almost concealed on the spire by the suture, but which passes for a short distance above the aperture; aperture dilated; labrum reflected, white, and excepting near the superior angle, flat; a slightly projecting callus near the base, on the inner edge; umbilicus large, profound, exhibiting all the volutions to the apex. Transverse diameter nineteen-twentieths of an inch.

Var. a.—Multilineated with rufous. Var. b., rufous line obsolete. Inhabits Ohio, Mississippi and Missouri banks.

A pretty shell, neatly ornamented with the rufous zone; the spire is very much depressed. Specimens occurred near Cincin-

nati on the Ohio, and at Engineer Cantonment at Council Bluff, on the Missouri.

Besides the above species, I have observed in the western regions the following known species, which I described in the American edition of Nicholson's *Encyclopædia*, and in the *Journal of the Academy*.

H. ALBOLABRIS.—Common as far as Council Bluff.

H. THYROIDUS.—On the banks of the Ohio, Mississippi and Missouri. The animal is of a pale whitish or yellowish color, immaculate.

H. ALTERNATA.—On the banks of the Ohio, Mississippi and Missouri Rivers; this species varies in being somewhat larger, and in having a rather more elevated spire. The animal is of a dirty yellowish orange color. The foot obtusely terminated behind, head and tentacula pale bluish, eyes blackish. Shell nine-tenths of an inch in breadth.

H. HIRSUTA.—Common as far as Council Bluff.

H. LABYRINTHICA. “ “ “

H. MINUTA. “ “ “

H. PERSPECTIVA.—Occasionally occurs on the banks of the Missouri, and other western streams, and in some parts common.

POLYGYRA PLICATA.—Shell convex beneath, depressed above, spire slightly elevated; whorls five, compressed, crossed by numerous raised, equidistant lines, which form grooves between them; aperture subreniform, labrum reflected, regularly arquated describing two-thirds of a circle; within two-toothed, teeth not separated by a remarkable sinus; labrum with a profound duplicature, which terminates in an acute angle at the centre of the aperture; beneath exhibiting only two volutions, of which the external one is slightly grooved near the suture.

Inhabits Alabama. Breadth one-fourth of an inch. Cabinet of Academy.

This species is about the same size as *P. avara*, but, besides other characters, it is sufficiently distinguished by the acute fold of the labrum. It was sent to the Academy by Mr. Samuel Hazard.

PUPA ARMIFERA.—Shell dextral; oblong oval, or somewhat

obtusely fusiform; suture distinct; whorls six, obsoletely wrinkled; aperture longitudinally subovate; exterior lip reflected, but not flattened, interrupted above by the penultimate whorl, and with five teeth, of which the superior one, and that which precedes the basal one, are smallest; labrum with an undulated lamelliform tooth, its anterior extremity little elevated, but elongated so as almost to join the superior extremity of the exterior lip.

Length three-twentieths of an inch. Inhabits Upper Missouri.

Var. a.—The two smaller teeth obsolete or wanting. Var. b.—The basal tooth obsolete or wanting.

Very distinct from *corticaria*, it being a much larger and proportionally more dilated shell; and with that species and the next seems to belong more properly to the genus *carychium* of Muller and Ferussac.

P. RUPICOLA.—Shell dextral, attenuated to an obtuse apex, white; whorls six, glabrous; suture deeply impressed; labrum bidentate; superior tooth lamiform, emarginate in the middle, and at the anterior tip obtusely uniting with the superior termination of the labium; inferior tooth placed upon the columella, and extending nearly at a right angle with the preceding; labrum tridentate, teeth placed somewhat alternately with those of the labium, inferior tooth situated at the base and immediately beneath the inferior tooth of the labium.

Length about one-tenth of an inch. Inhabits East Florida.

I formerly found it abundant on the banks of St. John River, in East Florida, and more particularly under the ruins of Fort Picolata, under stones, &c.

It is about the size of *P. corticaria*, and considerably resembles that species, but is sufficiently distinguished by the circumstance of its gradually decreasing in diameter from the body whorl, to its obtuse tip; and, in the character of the mouth, it is widely distinct.

SUCCINEA OVALIS.—(Jour. Acad. Nat. Sc. vol. i. p. 15.) A large variety of this species is found very common on the Missouri, of the length of about four-fifths of an inch; I observed one specimen which was upwards of an inch long.

CYCLOSTOMA MARGINATA.—Shell turreted, pale horn color, or dusky, obsoletely wrinkled across; suture rather deeply impressed; volutions six; aperture mutic, suboval, truncated transversely

above by the penultimate whorls, nearly one-third the length of the shell ; labium nearly transverse, color of the exterior part of the shell ; labium equally and widely reflected, thick, white, umbilicus distinct.

Inhabits Upper Missouri. Length one-fifth of an inch.

Size of *Paludina lapidaria*. Lister represents a species on plate 22, fig. 19, which, although rather larger, may possibly be intended for this species ; he denominates it "*Buccinum exigium, rufum, quinq orbium.*" This shell does not perfectly correspond in character with *Cyclostoma* ; it is most probably a Pupa, and if so, the specific name must be changed, as the present name is pre-occupied in that genus.

Journal of the Academy. Vol. ii., page 370, anno, June, 1822.

HELIX IRRORATA.—Shell imperforate, depressed, subglobular, pale reddish brown, with very numerous small white spots, and about four deeper brown obsolete bands ; whorls rounded, nearly five in number, wrinkles obsolete on the body whorl, more distinct on the spire ; spire depressed, convex ; suture declining much near the mouth ; aperture on the side of the labrum, within somewhat livid ; labrum reflected but not flattened, and not abruptly contracting the aperture, white before and yellowish behind ; near the junction with the columella is a callus, which does not rise into an angle.

Length from the apex to the base of the columella, three-fifths of an inch nearly. Greatest breadth one and one-tenth of an inch. Inhabits Northumberland county, Pennsylvania. Cabinet of Mr. William Hyde.

This species may be compared with the *H. lactea*, Muller and Ferussac ; the spire is rather more prominent, the white spots, or rather abbreviated lines are similar in form, size and number, but its labrum preserves the same color with the exterior of the shell, and the livid tint of the inner portion of the body whorl is very pale ; the posterior face of the reflected labrum is immaculate, and its callus base is not angulated ; the aperture is much less wide than that of *lactea* ; and in Mr. Hyde's specimen, a small fissure remains near the umbilicus. It still more closely resembles a variety of a shell which inhabits the Island of Candia, but that

species has always a white base, being immaculate beneath the inferior band.

II. INORNATA.—Shell subglobose, pale yellowish horn color, polished; whorls five, rounded, wrinkled; spire convex; suture not deeply impressed; umbilicus small, profound; aperture wide, at the junction of the labia with the penultimate whorl shorter than the width of the mouth; labrum simple.

Inhabits Pennsylvania. Greatest width less than seven-tenths of an inch.

This species has a strong resemblance to *H. ligera*, but in addition to its superior magnitude, its aperture is proportionally wider, a character which of course gives the whorls a greater breadth; the whorls are also fewer in number, and the distance between the terminations of the lips is very perceptibly less than the width of the aperture, the reverse of which obtains in the *ligera*.

II. INDENTATA.—Shell depressed, pellucid, highly polished; whorls four, with regular, distant, subequidistant, impressed lines across, of which there are about twenty-eight to the body whorl, all extending to the base; suture not deeply indented; aperture rather large; labrum simple, terminating at its inferior extremity at the centre of the base of the shell; umbilicus none, but the umbilical region is deeply indented.

Greatest breadth one-fifth of an inch. Animal blued-black, immaculate.

My cabinet and that of Mr. Wm. Hyde. Several specimens occurred at Harrigate, the country residence of my friend Mr. Jacob Gilliams, adhering to stones and logs in moist places. Mr. Hyde obtained many individuals in New Jersey. It may readily be mistaken for *H. arborea*, but it is destitute of the umbilicus, instead of which there is an indented centre to the base, in which the labrum terminates. The spire is very much depressed, and the surface prettily radiated by distant impressed lines, the interstices being perfectly smooth.

H. LINEATA.—(Vol. i., p. 18.) On examination of several individuals of this species, I have ascertained that a character exists in this species that was altogether wanting in the specimen from which I drew out the description published in the first volume of this work. As the shell is somewhat translucent, two pairs of white teeth, remote from each other, may be observed through the

body whorl of the shell. One pair of these teeth is placed in the throat, so near to the labrum as readily to be seen by looking in at the aperture. These teeth are nearly equidistant from each other, and from the extremities of the labrum. The other pair is placed so far within the shell as not to be seen at all from the aperture.

I found several specimens in a humid situation at Harrigate.

BULIMUS MUTILATUS.—Shell turriculated, pale reddish brown; whorls four, longitudinally striated with irregular elevated lines or wrinkles, which are a little more prominent near the sutures; suture not deeply indented; apex widely truncated; labrum whitish, destitute of calcareous deposit; body whorl more than double the width of the truncated apex; spire one and a half times longer than the aperture. Length less than one inch; width less than half an inch; length of the aperture two-fifths of an inch.

Inhabits South Carolina, about Charleston.

This curious shell is the first and only species of the genus *Bulinus*, native of the United States, that I have yet seen. I am indebted for it to the researches of Mr. Stephen Elliott, of Charleston, who informs me that it is there found in gardens. In the truncated form of the apex of the spire, this species resembles the *decollata*, *consolidata*, *truncata*, and *Pupa torticollis*, &c., but it is sufficiently distinct from the former, to which it is more closely allied than to the others, by its less cylindrical and more conic form, being much more robust in its figure and less elongated; the aperture is consequently wider, and forms a greater proportion of the total length. It does not change to an opake white after the death of the animal, as the *decollata* generally does.

PUPA CONTRACTA.—Shell dextral, short, subovate, white; apex obtuse; whorls five; umbilicus distinct; aperture regularly orbicular, complete, the lamina of the labium being elevated above the surface of the preceding whorl, and joining the extremities of the labia; labium with a large, elongated, prominent tooth, which is concave on the side towards the labrum; labrum bidentate, a large tooth or fold far within the throat, caused by the fold of the umbilicus; throat much contracted by the large tooth of the labrum into the form of a horse-shoe.

Total length less than one-tenth of an inch. Inhabits Virginia.

This is a short, wide species, sufficiently distinct from others, and readily distinguished by the lamina of the labrum being much elevated, and by the magnitude of the tooth of the labium. I obtained two specimens at Occoquan, under a pile of bricks and rubbish. This species probably belongs to the genus *Carychium*.

P. EXIGUA.—Shell dextral, tapering, oblong, with minute grooved lines; apex obtuse; whorls five; suture deeply impressed; labium bidentate, superior tooth situate rather beneath the middle of the lip, inferior tooth small, placed on the columella; labrum mutic, reflected, but not flattened; umbilicus distinct.

Length more than one-twentieth of an inch.

This is the smallest species that I have seen. Numerous specimens of it were found near this city by Mr. William Hyde, and I have obtained many at Harrigate. Its aperture resembles that of Pupa (*Carychium*) *corticaria*, but the superior tooth of the labium of that shell is situate much nearer to the superior termination of the labrum than the corresponding tooth of this diminutive species. It is probably a *Carychium*.

GENUS VERTIGO—MÜLLER AND FERUSSAC.

P. (VERTIGO) OVATA.—Shell dextral, subovate, brown; apex obtuse; whorls five, glabrous; suture not very deeply impressed; body whorl indented near and upon the labrum; aperture semi-oval; labium five-toothed, of which three are situate on the transverse portion of the lip, parallel to each other, equidistant, the superior and inferior ones being small, the latter sometimes obsolete, the intermediate one lamelliform, prominent, and the two others situate on the columella, approximate, extending at right angles to the three preceding ones, the superior one oblique and smaller; labrum reflected, but not flattened, bidentate, teeth lamelliform, prominent; umbilicus distinct.

Length less than one-tenth of an inch. Breadth nearly one-twentieth of an inch.

Animal—tentacula two, rather long and thick, cylindrical-obconic, retractile, with a rounded oculiferous extremity; foot white; head and neck, as far as the mantle, black.

Inhabits Pennsylvania. Numerous specimens were discovered by Mr. William Hyde in the vicinity of this city, and I obtained

others at Harrigate. The smallest teeth of the labium are sometimes obsolete.

V. PENTODON.—Shell dextral, subovate, whitish horn color; apex obtuse, whorls five, glabrous, convex; suture not very deeply impressed; aperture semioval; labium two-toothed, of which a single very prominent one is on the middle of the transverse portion or true labium, and the other is remote, much smaller, and placed in the basal angle of the columella; labrum regularly arquated, tridentate, tooth nearest the base very small, and placed near the smaller tooth of the columella, the two others larger, subequal; umbilicus distinct.

Length less than one-tenth of an inch.

Animal—tentacula two, rather long and thick, cylindrical obconic, retractile, with a rounded oculiferous extremity; two hardly elevated truncated tubercles instead of the anterior tentacula; foot white; head and neck, as far as the mantle, black.

Inhabits Pennsylvania. The lower tooth of the labrum is sometimes obsolete.

MELAMPUS OBLIQUUS.—Obconic, reddish brown, rather thick; spire very little elevated; whorls eight or nine, wrinkled across; labium with two very distinct teeth, and an intermediate and equidistant slight obtuse prominence; inferior tooth very oblique, terminating at the base; labrum with about eight teeth or striæ, which terminate on the margin; base of the aperture a little contracted by the basal tooth.

Length more than seven-twentieths of an inch. I am indebted to Mr. Stephen Elliott for this species, who obtained it on the coast of South Carolina. It is closely allied to *Bulimus monile*, Brug., but it has no appearance of bands, which distinguish that shell. In the collection of the Academy are specimens from the West Indies.

In the Journal of the Academy, vol. v., page 119, et seqq., anno, 1825.

HELIx FALLAX.—Spire convex; volutions five, with elevated lines forming grooves between them; labrum reflected, contracting the aperture, bidentate; teeth separated by a profound sinus; superior tooth inflected into the mouth; inferior tooth situated near the base; labrum with a large, prominent, oblique, lamelliform

tooth, curving downwards so as nearly to reach the termination of the labrum ; umbilicus open, exhibiting the volutions.

Greatest transverse diameter nine-twentieths of an inch.

This resembles the *tridentata*, *Nob.*, but the upper tooth of the labrum is much inflected, the spire is more elevated, and the size is less considerable ; in the former character it coincides with *H. inflecta*, *Nob.*, but that shell has the umbilicus closed.

Presented to the Academy by Messrs. Hyde and Mason, who found it in the vicinity of Philadelphia, where it is not uncommon.

Since the above was written, I received a specimen from Mr. Stephen Elliott, of South Carolina, fully equal in size to the *tridentata*.

H. EGENA.—Shell convex, polished ; whorls five, not distinctly wrinkled, rounded ; aperture rather narrow, transverse ; labrum simple, at its inferior extremity terminating at the centre of the base of the shell ; umbilicus none, but the umbilical region deeply indented.

Breadth more than one-tenth of an inch.

This shell was found by Mr. John S. Phillips on the banks of the Delaware River, about ten miles from Philadelphia. It is much more elevated and not so broad as *H. arborea*, *Nobis.* ; the aperture also is of a different shape. It is much broader than the *H. chersina*, *Nob.*

BULIMUS MULTILINEATUS.—Shell conic, not very obviously wrinkled ; whorls not very convex, yellowish white, with transverse entire reddish brown lines ; a blackish subsutural revolving line ; suture not deeply indented, lineolar ; apex blackish ; umbilicus small, surrounded by a broad blackish line ; columella whitish ; labrum simple, blackish.

Length less than seven-tenths of an inch. Greatest breadth less than seven-twentieths of an inch. This species was found by Mr. Titian Peale on the southern part of East Florida.

PUPA FALLAX.—Shell turreted, pale horn color ; wrinkles rather obtuse, hardly prominent ; suture rather deeply impressed ; volutions nearly seven, a little convex ; apex somewhat obtuse ; aperture unarmed, suboval, truncated above by the penultimate whorl, less than one-third the whole length of the shell ; labrum nearly transverse, color of the exterior part of the shell ; columella reflected, rectilinear, longitudinal, forming an obvious though

a rounded angle with the labrum and the labium : labrum hardly reflected ; umbilicus narrow.

Length more than three-tenths of an inch. For this species I am indebted to Dr. T. W. Harris, of Milton, Massachusetts.

It closely resembles *P. marginata*, *Nob.*, but is much larger, and the labrum is not widely reflected. When viewed in front it has a reflected appearance, but the opposite view presents only a very limited excurvature.

ACHATINA SOLIDA.—Shell conic, rather elongated, nearly smooth, or with distant wrinkles, polished, yellowish, paler towards the apex, which is white ; rather ponderous ; whorls about seven ; spire prominent ; mouth rather small ; labrum on its inner submargin thickened ; columella hardly truncated, with a somewhat prominent ridge on the inner side near the base.

Length two and a half inches. This species was found by Mr. Titian Peale in the southern part of East Florida, where he also obtained the *A. flammigera*, *Fer.*, and *vexillum*, *Humph.*, or their analogues, in plenty. In outline it bears some resemblance to Lister's fig. 9, of plate 14, but is much smaller. It appears to be rare, but one specimen having been brought home by Mr. Peale.

CYCLOSTOMA DENTATUM.—Shell conic, cylindric, truncate at tip ; whorls three or four, slightly convex, cancellate, with fine, regular, subequal, longitudinal, and transverse elevated lines ; superior edge fimbriated, with prominences extending over the suture ; one or more rufous revolving lines, sometimes obsolete ; labrum somewhat reflected, white ; umbilicus distinct.

Length less than one-half inch.

For this species we are indebted to the researches of Mr. T. Peale in Florida. It is the only true species of *Cyclostoma* yet found within the limits of the Union. This species is somewhat like the *Turbo crenatus*, *Linn.*, but that shell is not said to be truncated at tip, and has a keeled base.

No. 3.—In the Appendix to Long's Second Expedition to the St. Peter's River, the following species were described, anno, 1824.

HELIX HARPA.—Shell conic, reddish brown ; whorls four, convex, with numerous elevated, subequidistant, equal, lamelliform, acute lines across, the interstitial spaces flat and wrinkled ; aperture suborbicular, truncated by the penultimate whorl, and

very little oblique ; labrum simple ; umbilicus small, nearly concealed by the base of the labrum.

Length rather more than one-tenth of an inch. Inhabits the North-west Territory.

The elevated lines on this shell give it a very handsome appearance, and readily distinguish it from any of our native species that I have seen. The European analogue is the *aculeata* of Muller, but our shell is destitute of recurved points on the lamelliform lines. Pl. 15, f. 1.

H. PORCINA.—Shell depressed, yellowish brown ; epidermis rugose, with minute, very numerous bristles ; whorls rather more than four, depressed above, beneath rounded, forming a very obtuse angle rather above the centre of the whorl ; umbilicus open, rather small, profound ; labrum simple.

Breadth rather more than three-tenths of an inch. Inhabits North-west Territory. Pl. 15, f. 2.

H. FRATERNA.—Shell convex, brownish horn color, minutely hirsute ; whorls five, rounded ; umbilicus partially or entirely closed by the termination of the labrum ; region of the umbilicus indented ; aperture much contracted by the labrum ; labrum reflected, white, unarmed ; its outer edge not projecting beyond the curve of the whorl ; its inferior angle extends to the centre of the base of the shell ; labium with a strong, prominent, compressed, white tooth.

Breadth one-third of an inch. Inhabits Pennsylvania.

I obtained a specimen of this shell several years ago, but supposing it to be an accidental variety of the *hirsuta*, I laid it aside without further notice. Since then, however, Messrs. Hyde and Mason have presented numerous specimens of the same species to the Academy, having found it rather common ; I therefore no longer hesitate to consider it as a distinct species. It resembles *Helix monodon* of Mr. Rackett (Trans. Linn. Soc. London, vol. xiii., pl. 5,) in the conformation of the aperture, but that shell is represented as being largely umbilicated, and its labrum does not extend near to the centre of the base, as it does in our shell. Pl. 15, f. 3.

H. DIODONTA.—Shell somewhat depressed ; spire convex, very little elevated ; whorls five, rounded, regularly, but not prominently wrinkled, and grooved transversely ; aperture moderate ;

labrum reflected, with a slightly projecting dentiform callus near the base on the inner edge; labium with an oblique tooth on the middle; umbilicus rather large, profound, exhibiting all the volutions.

Breadth rather more than seven-tenths of an inch. This shell inhabits the State of New York. It is closely allied to *H. profunda*, NOB., but may be distinguished by its smaller size and armed labium. Its aperture also is much more dilated than that of the *profunda*, Pl. 15, f. 4.

H. PERSPECTIVA, NOB.—Is common in the North-west Territory; it varies in being smaller, and in the circumstance of the labrum embracing a somewhat smaller portion of the penultimate volution.

H. ARBOREA, NOB.—Common in this Territory.

H. CHERSINA, NOB.—A variety of this species is not uncommon in the North-west Territory. It differs in the greater rotundity of the upper part of each whorl, and in the somewhat less rounded or more flattened figure of the labrum. It may, however, prove to be a distinct species, when many specimens of *chersina* can be had to compare with it.

H. ALTERNATA, NOB. and *H. ALBOLABRIS*.—On our return homewards, these two species were not found until we arrived in the secondary country towards the eastern extremity of Lake Superior.

H. THYROIDUS, NOB.—Falls of Niagara.

H. LIGERA, NOB.—North-west Territory.

VITRINA PELLUCIDA of Authors.—This shell was first found near Coldwater Lake in latitude $48\frac{3}{4}$ north, under stones, fallen timber, &c. It afterwards frequently occurred in similar situations, until we approached Lake Superior, when it was no more seen. Like its congeners, the inhabitant is much too large to retract within the shell, and a great portion of the body is therefore constantly exposed. No species of this genus has been hitherto found in this country; the discovery of this shell is therefore the more interesting. The specimens which we collected do not appear to differ in any respect from those of Europe.

BULIMUS LUBRICUS of Authors.—The species occurred under stones, &c., on the shores and islands of Lake Winnepeck and Lake of the Woods. It is altogether similar to the European

specimens of this species, excepting that the labium is somewhat more transverse.

PUPA MODESTA.—Shell dextral, suboval, minutely wrinkled; apex obtuse; whorls six; umbilicus distinct; aperture obliquely subovate; labium with a prominent, compressed, semioval tooth, equidistant from the extremities of the labrum, and a somewhat conic one rather below the middle of the columella; labrum not reflected, joining the preceding whorl at its upper extremity with a curve; bidentate, lower tooth placed opposite to that of the middle of the labium, the others smaller and placed a little above.

Length less than one-tenth of an inch. Inhabits the North-west Territory. Pl. 15, fig. 5.

Var. a.—The smaller tooth of the labrum obsolete or wanting.

SUCCINEA AVARA.—Shell suboval, pale reddish-yellow, subdiaphanous, fragile, covered with an earthy crust; whorls three, minutely wrinkled; body whorl very large; spire small; aperture large, subovate, about two-thirds of the whole length of the shell.

Length three-twentieths of an inch. Inhabits the North-west Territory.

This small species of *Succinea* occurs in humid places, very frequently under stones and near the water. The shell is always completely encrusted with a coating of earth. It may at once be distinguished from either the *ovalis* or *campestris* by its very small size. Pl. 15, fig. 6.

S. OBLIQUA.—Shell oblong-oval, nearly pellucid, pale amber-colored; whorls three, very obliquely revolving, distinctly wrinkled; spire a little prominent; aperture suboval, somewhat oblique.

Length seven-tenths of an inch; length of the aperture less than one-half inch. Inhabits Pennsylvania.

Of this fine species, found in the vicinity of Philadelphia, many specimens were some time since presented to the Academy Nat. Sc. by Messrs. Hyde and Mason, and we obtained a specimen near the Falls of Niagara. It may at once be distinguished from either the *ovalis* or *campestris* by the much greater obliquity of the revolutions of its whorls. It is very much like the *HELIX putris* of Linn., but it is more than double the size of that species. It may, however, be a variety of that shell. Pl. 15, fig. 7.

(Say's American Conchology, vol. i., No. 11, April, 1831.)

HELIX ALBOLABRIS.—Shell convex, imperforated, immaculate, pale reddish brown; volutions about five and a half, with rather obtuse wrinkles, crossed by very minute lines, more obvious on the body whorl than on the spire; suture distinct, not very deeply impressed; labrum abruptly contracting the mouth, rather widely and abruptly reflected, flattened in the plane of the mouth, white, rather deeply and abruptly more arquated at base. Plate 13, fig. a.

SYNONYMS.

Helix albolabris, Nobis—Nobis. Am. Ed. of Nichols. Encycl., vol. iv. Ferussac, Hist. Nat., pl. 43, f. 1 to 5.

Cochlea virginiana, subalbida, medioeris, circiter quinis orbibus, parum altis ad claviculam circumscripta. Lister, Synops. pl. 47, f. 45.

This is one of our most common species, less abundant, however, in the Western than in the Eastern portion of the United States; and is an inhabitant of an extensive region, extending from Canada to South Carolina, whence an individual was sent me by the late Mr. Elliott; and it is probably found even in Florida. It belongs to the genus *Acavus*, *Montfort*, which he separates from *Helix*, in consequence of being destitute of umbilicus.

A species of the Linnæan Genus *Acarus* infests the animal. I have frequently seen this little active parasite, running out and in the respiratory cavity, when the orifice was open to receive the air. Sometimes it is excluded for a few moments by the closing of the orifice, but it courses nimbly about until another dilatation of the pulmonary aperture receives it into the interior. An analogous species inhabits the *Helix nemoralis*, L. of Europe, according to Kirby and Spence.

H. THYROIDUS.—Shell rather thin, convex, umbilicate, pale reddish brown, immaculate; volutions five, wrinkled; suture distinct, but not very deeply impressed; labrum abruptly contracting the aperture, rather widely reflected, flattened in the plane of the mouth, excepting the superior third, and white; umbilicus narrow, distinct; labium with an oblique white tooth, rather above the middle, and not very prominent.

SYNONYMS.

Helix thyroidus.—Nobis, Journ. Acad. Nat. Sc. vol. i., p. 123.

Nicholson's Encycl. (Am. edition.)

Ferussac, Tabl. System, p. 33.

Cochlea umbilicata, capillaceis stryis per obliquum donata. Unico dente ad fundum oris. List. Synopsis Conch. pl. 91, f. 91.

The following synonyms are from Ferussac, Tab. Sys. Petiver, Gazophyll. t. 405, f. 4—Philos. Trans. vol. xx., p. 375.

Cochlea terrestris Virginiana, &c. Schroter, Enleit, ii., p. 192, No. 60.

A very abundant species, much more numerous than the preceding in this region. It has certainly a general resemblance to the *albolabris*, but it is smaller, always umbilicated; the labrum, near its junction with the penultimate whorl is not so flatly reflected, and the tooth of the labrum is very conspicuous. It belongs to Montfort's genus *Cepolis*, plate 13.

GLANDINA TRUNCATA.

SYNONYMS.

Buccinum striatum. Chemnitz, ix., t. 120, fig. 1028, 1029, (Ferussac.)

Bulla truncata. Gmel. Dillwyn, (Fer.)

Polypheumus glans. Nobis. Nicholson's Encycl.

Helix rosea. Ferussac.

è flumine quodam Carolinæ. List. Conch. 1059, fig. 4.

Shell pale reddish brown, or slightly tinted with rosaceous, often deepest on the spire, gradually becoming paler to the aperture; spire rather prominent, somewhat mamelary at tip; volutions, five or six, very obviously wrinkled; two or three apical volutions, almost destitute of wrinkles; suture well defined, irregularly crenulated; columella decidedly incurved.

When in the Sea Islands of Georgia and Florida with Mr. Maclure, we found this species in great abundance in marshy districts immediately behind the sand hills of the coast. In Florida they also occurred on elevated mounds of oyster shells, called hammocks, and generally in such situations as are tenanted by *Succinea campestris*, Nob. On these elevations they were generally small, translucent, and of a fragile consistence, and we observed that they obtained their greatest development only in

the low marshy places. Mr. Elliott, of Charleston, South Carolina, since favored me with living specimens from near that city, where, he informed me, they are not very abundant. These individuals refused such vegetable food as I could procure for them, (in December,) but one of them devoured the animal of a *Helix* which was in the vessel that contained them. Lister's figure above quoted is referred to with doubt by Ferussac, in his *Tab. Syst.* p. 57, for his *Helix goniostoma*.

In Lesueur's collection are specimens which he found at St. Francisville on the Mississippi, and Mr. Titian Peale found specimens on the Florida Keys. So that, taking the above-mentioned localities into consideration, this shell seems to be an inhabitant of the whole alluvial region, from at least the middle of South Carolina to the Mississippi, and perhaps even still farther south.

In the American edition of Nicholson's *Encyclopædia* I published an account of this species under the name of *Polyphemus glans*; I supposed it to be that species, as Montfort says it lives in the interior of Louisiana. But Ferussac says that our shell is not the *glans* of Bruquière, which is not an inhabitant of Louisiana, but of St. Domingo. In his general observations, as well as in a letter to me, he says it is the *Buccinum striatum* of Chemnitz, and *Bulimus striatus* of Bruquière; whereas, in his enumeration of the species, he rejects the name of *striatus* entirely, and places those two synonyms under two separate species, to which he gives new names. I think, however, that this name cannot, in justice to Muller—from whom Bruquière adopted it—be applied to our species, inasmuch as he had reference to the South American species. As it is, therefore, neither the *glans* nor the *striata*, I adopt the name applied by Gmelin, for which I am indebted to the synonyms collected by Ferussac, on whose accuracy and opportunities for comparison in this instance I wholly rely, when, in my own opinion, the reference would, but for this authority, be doubtful.

No. 4.—March, 1832.

HELIX CLAUSA.—Pl. 37, fig. 1. As in *Journ. Acad.*

H. ELEVATA.—Pl. 37, fig. 2. As in *Journ. Acad.* Synonym

H. Knoxvilleana? Fer. *Tab. Syst.* p. 33.

H. PROFUNDA.—Plate 37, fig. 3. As in Journ. Acad. My description of this shell was published in the year 1821. Lamark's description of *H. Richardi* did not appear until April, 1822, but he quotes, by anticipation Ferussac, Hist. des Mollusques, No. 174, for the specific name, which was, however, not then published in that work, but appeared in the Tableau Systematique of the latter author in the earlier part of the same year. The name of *profunda* has therefore the priority, and consequently must be adopted.

No. 5.—August, 1832.

HELICINA ORBICULATA.—Plate 46, f. 1, 2, 3. Same as *Oligyra orbiculata*, Nicholson Encycl.

H. OCCULTA.—Pl. 46, f. 4, 5, 6. Same as Trans. Journ. Med.

No. 6.—April 1834. On the cover.

It seems probable that *HELIX IRRORATA* is a variety of *H. lactea*, Müll., with which I compared it when describing it.

CARACOLLA HELICOIDES, Lea.—Trans. Am. Phil. Soc. vol. iv. N. S., is variety a, of *Helix palliata*, Say, *H. denotata*, Fer.

HELIX CAROLINENSIS, Ibid.—Corresponds by descriptions and figures with *H. appressa*, Say, Var. a.

No. 5 and 6.—Descriptions of some new Terrestrial and Fluvial Shells of North America, &c.

HELIX LUCUBRATA.—Shell subglobose, depressed, reddish brown, polished, subtranslucent; whorls over four, much wrinkled; spire much depressed, convex; suture moderate; beneath paler; umbilicus open, rather large; aperture nearly orbicular; labrum simple.

Greatest width one inch. Inhabits Mexico. Closely allied to *H. inornata*, Nob., but the umbilicus is much larger, and the aperture is more accurately rounded; the color is nearly the same, excepting that in the present it is of a deeper shade.

H. SUPPRESSA.—Shell subglobose, depressed, pale horn color, polished, somewhat pellucid; body whorl opaque, whitish near the

aperture ; volutions six, wrinkled ; spire convex ; aperture sublunate, narrower beneath ; within, a prominent tooth near the base, distant from the margin ; labrum simple ; umbilicus rather small, orbicular, profound ; region of the umbilicus indented.

Greatest breadth more than one-fifth of an inch. Inhabits Pennsylvania.

I found a few specimens of this shell on the farm of my friend Mr. Reuben Haines, at Germantown.

With the exception of the size and the armature of the throat, it is somewhat of the habit of *H. ligera*, *Nob.* ; but the opacity of the body whorl near the aperture, is much more remarkable. These characters, combined with that of the tooth, will readily distinguish this species from any other.

POLYGYRA FATIGIATA.—Shell convex beneath, nearly plane above, the spire being hardly perceptibly elevated ; whorls a little over six, compressed, acutely carinated, crossed by numerous raised, equidistant lines, which form grooves between them ; superior *surface* not at all convex ; aperture subreniform ; labrum reflected, regularly arcuated, describing two-thirds of a circle ; within two-toothed, lower tooth conic obtuse, superior tooth compressed, transverse, placed further within the aperture than the inner one, from which it is separated by a wide and deep and obvious sinus ; labrum with a very profound duplicature, which has a concave surface, but with no emargination near its acute tip ; beneath exhibiting only two volutions, without any distinct groove on the external one near the suture ; beneath the carina the elevated lines are obsolete.

Greatest breadth seven-twentieths of an inch.

Found by Mr. Lesueur in the vicinity of New Harmony. It is very closely allied to that species which I described under the name of *plicata* ; the character of the mouth is very similar, but in that shell, such is the situation and form of the teeth of the labrum, that at first view they do not seem to be separated by a remarkable sinus, and the inferior tooth is compressed and larger than the other ; the duplicature of its labium is emarginate near the tip. The present species is also larger, carinated, and the elevated lines are obsolete below the carina.

HELICINA OCCULTA.—Carinated ; carina almost concealed on the spire, and nearly obsolete on the body whorl ; whorls about

five, carinate, or with an acute shoulder, which is almost concealed on the spire by the suture; it becomes more obtuse and almost obsolete, or even impressed on the body whorl, but near the labrum it is again very obvious; the whole surface has slightly elevated, somewhat regular lines, forming grooves between them across the whorls, and there is an appearance of revolving lines on the body whorl, particularly beneath; labrum entire, thick, a little reflected, obtusely a little more prominent towards the base, but not angulated.

All the specimens I have found are dead and bleached. They occur abundantly in the ragged and abrupt "bluff," half a mile below New Harmony, near the river bank, with many *Helices* that are commonly found in the Western States. They are much of the same size or even a little larger than the *Helicina orbiculata*, Nob., which species is destitute of carina or of prominent wrinkles or elevated lines, its labrum is reflected, but not thickened, with a distinct angle near its base.

Succinea vermeta.—Shell suboval, yellowish, very thin and fragile, somewhat diaphanous, with nearly three very oblique volutions; whorls very much rounded, wrinkled; suture very profoundly impressed; spire rather prominent and acute; aperture ovate, the superior termination rounded.

Inhabits margins of ponds near New Harmony.

This species is remarkable for the very deep indentation of its suture, giving to the whorls of the spire the appearance of being almost separated from resting on each other; and by this character it may be readily distinguished from the other species of this country. It was found by Dr. Troost.

S. undulata.—Shell suboval, pale yellowish, translucent, fragile; volutions three and a half; spire moderate, wrinkles obsolete, body whorl wrinkled, or rather slightly undulated; columella narrowed, so as to exhibit the appearance of an interior umbilicus, when viewed with a lens from the base.

Length about one-half inch. Inhabits Mexico.

Very similar to *S. ovalis*, Nob., but the suture is not so deeply indented, and it has from one-half to three-fourths of a whorl more; the surface of the body whorl also is rather undulated than wrinkled. One of the individuals lived nearly twelve months in my cabinet, without any apparent sustenance.

PUPA PLACIDA.—Shell dextral, cylindric-conic, pale yellowish horn color; apex whitish, obtuse; whorls six and a half, somewhat wrinkled; suture moderately impressed; aperture unarmed, longitudinally oval, truncate a little obliquely above by the penultimate volution; columella so recurved as almost to conceal the umbilicus; labrum, with the exception of the superior portion, appearing a little recurved when viewed in front, but when viewed in profile, this recurvature is hardly perceptible; umbilicus very narrow.

Length over three-tenths of an inch. Inhabits Massachusetts.

For this shell I am indebted to Dr. T. W. Harris, of Milton, from whom I have received many interesting species of our more northern regions. At first view it might be mistaken for the *P. marginata*, Nob., but it is quadruple the size, and the labrum is not reflected and thickened.

BULIMUS ALTERNATUS.—Ovate conic, with alternate gray and brownish longitudinal vittæ. Inhabits Mexico.

Shell umbilicated, ovate-conic, with longitudinal lines, subequal, gray and light brownish vittæ; the brown is paler, almost approaching in some instances a drab; the white vittæ consists of more or less confluent, transverse, irregular lines, and small spots; whorls about six, a little convex; suture not profoundly impressed; labrum (in some specimens) with a thickened line or rib on the inner submargin; within white, with a perlaceous tinge.

Length one and one-fifth of an inch. Greatest breadth seven-tenths. This species appears to be not uncommon in Mexico, as many specimens were sent me by Mr. Maclure; but from what particular locality, I know not.

B. UNDATUS, BRUG.—Occurs in some parts of Mexico. I found a specimen on the road from Vera Cruz to the city. The late Mr. Elliott, of Charleston, presented to me a *Bulimus* which I described under the name of *reses*; but on comparing it to the present species, I think it may be considered as a variety; it is rather less ventricose, the longitudinal lines are very slender and pale, and the transverse lines much more distinct. It inhabits trees on the south part of Florida.

B. SERPERASTRUS.—Elongate subovate, about six banded. Inhabits Mexico. Shell conic or elongate subovate, umbilicated; whitish or white, with about six interrupted, more or less con-

fluent, dark rufous bands; spire as long, or rather longer than the aperture, with three or four widely interrupted bands; suture not very deeply impressed; whorls a little convex; labrum widely curved a little outwards; columella rather wide at its origin.

Length one and a half inch; greatest breadth, excepting the lip, (parallel, of course, to the suture,) seven-tenths of an inch. I obtained it on the side of the road between Vera Cruz and Mexico.

B. EMEUS.—With crowded, minute, transverse striæ. Inhabits Mexico. Shell conic or elongate ovate, slightly angulated on the middle of the volutions, and covered with minute, undulated, impressed, capillary lines; whitish, with maculated bands; suture not deeply impressed; aperture shorter than the spire; labrum exteriorly simple, interiorly with a thickened submargin; columella short, recurved; umbilicus small, but distinct; spire with the angulation concealed by the suture; body whorl with the angulation almost obsolete.

Length thirteen-twentieths of an inch; greatest breadth (parallel to the suture) three-tenths. I found this species on the road from Vera Cruz to Mexico. As I possess only the "Tableaux Systematiques" of Ferussac's splendid work, the preceding species of *Bulimus* are offered with considerable hesitation; but those who possess that work can readily detect an error, if there be one.

NOTE.—Through the kindness of Dr. Meigs, the obliging Librarian of the Academy, I have been able to have impressions taken of Mr. Say's plate of *Helix clausa*.

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- 1 *Helix clausa* S
 2 *elevata* S
 3 *profunda* S

